

The University of Chicago War Papers

No. 5

THE WAR AND INDUSTRIAL READJUSTMENTS

By

HAROLD GLENN MOULTON

Associate Professor of Political Economy

The University of Chicago



THE UNIVERSITY OF CHICAGO PRESS
CHICAGO, ILLINOIS

Published April 1918

Full permission to reprint is given to the press

THE UNIVERSITY OF CHICAGO PRESS
CHICAGO, ILLINOIS

THE BAKER & TAYLOR COMPANY
NEW YORK

THE CAMBRIDGE UNIVERSITY PRESS
LONDON AND EDINBURGH

THE MARUZEN-KABUSHIKI-KAISHA
TOKYO, OSAKA, KYOTO, FUKUOKA, SENDAI

THE MISSION BOOK COMPANY
SHANGHAI

THE WAR AND INDUSTRIAL READJUSTMENTS

How may American industries most effectively aid in the successful prosecution of the war? What readjustments, if any, must be made in the coming months to insure the production of the perfectly stupendous quantities of supplies and materials that war imperatively demands? Can we secure these supplies by speeding up production in existing factories and workshops, or must we transform in considerable measure the character of our industries, eliminating the nonessential and thereby diverting productive energy more largely into war channels?

In the present paper an attempt will be made to throw light upon these vital questions. First, we shall make a simple analysis of the industrial requirements of the war; secondly, a statement of the lessons that are to be learned from the experience of Europe during the past three years; thirdly, a brief statement of the lessons from our own experience to date; and finally we shall give an account of the plans for the future that are now being formulated at Washington.

THE FUNDAMENTAL REQUIREMENTS OF THE SITUATION

Someone has said—I think it was Napoleon—that three things are necessary to wage a war successfully: money, more money, and still more money. There is a great deal of truth in this statement in ordinary wars, but as applied to the United States in the present conflict it is entirely misleading. Money is of paramount importance when a nation may buy its war supplies from abroad. England and France, for instance, before our entrance into the war, purchased with money vast quantities of war supplies from the United States. But it is impossible for us to use money, to any great extent, in buying goods from other nations, for the simple reason that the entire commercial world is now at war. With his money Uncle Sam can buy war supplies only from himself. There are of course a few exceptions to this, such as nitrates and rubber; but, substantially speaking, Uncle Sam must produce all the things

which he is to use in the war. We the people turn funds into the Treasury and then Mr. McAdoo buys from us the supplies needed. The amount that he can buy is determined, in practice, by the amount of war supplies we have produced. Similarly, when we extend *credit* to our allies we really say to them, We will furnish you with materials and supplies now and you may pay for them after the war is over. This point must be strongly emphasized; for many people fancy that furnishing credit to our allies means merely sending them money, or perhaps some sort of draft or credit instrument. In the last analysis it always means that we send them goods, which they are to pay for at some future time.

To understand, then, the real problem with which we are confronted, we must think in terms of goods rather than in terms of money. Three things, in the main, are required of us, aside from soldiers:

1. Ships—as many as can be constructed.
2. Supplies and munitions—as many as can be furnished.
3. Food—as much as can be produced.

While these are the specific *things* that are required, it is obvious that to produce these things in utterly unprecedented quantities will require the development first of many industries that are auxiliary to shipbuilding, war manufacture, and farming. The modern industrial world is extraordinarily complex, and every fundamental industry has a multitude of handmaidens.

Now let us see precisely what this involves in the way of industrial mobilization. We have in the United States, let us say, 60,000,000 working people. Ordinarily these 60,000,000 workers produce (1) essentials, (2) nonessentials. In time of war many of these workers are drawn off from productive industry to war service, but enough others are pressed into the industrial ranks to take up much of the slack—possibly they fully replace the number who are called to the colors. Let us assume that we have 60,000,000 workers who must produce the indefinite quantities of ships, supplies, munitions, and food that are demanded.

Now there are just two possible alternatives before us: First, these 60,000,000 workers must be speeded up to a point where they will be producing, not only the usual quantities of (1) essentials

and (2) nonessentials, but in addition the unlimited quantities of ships, supplies, munitions, and food that are required; or, secondly, we must produce (1) essentials; but then, instead of producing (2) nonessentials, transfer, so far as may be practicable, the factory power and the labor power ordinarily devoted to producing luxuries to the production of the indispensable ships, munitions, and other war materials.

When the war began it was generally assumed in the United States that the first of these alternatives would be adequate to meet the requirements of the situation. We assumed that the production of war supplies could be undertaken as an *extra*—that we could speed up our factories and our workers sufficiently to meet all war demands. We did not understand how utterly insatiable are the demands of modern warfare. The notion that war production can be carried as an *extra* is, however, no longer held in government circles. It is now conceded that we must resort to the second method. In order to understand clearly the reasons for this change we must consider the lessons that the United States has learned from Europe in this connection.

WHAT GERMANY HAS DONE

One of the best ways of ascertaining the problem that lies before us is to study the German method of industrial mobilization. We have all wondered many times how Germany has been able to finance the war, how she has been able for four years—though largely cut off from the outside world—to resist the economic pressure of the Allies and at the same time procure the necessary war supplies for campaign after campaign—yes, let it be faced squarely—for victory after victory against her united enemies.

There is just one answer to this question. As soon as it became apparent that the war would be long-continued Germany set about the eliminating of all nonessential industries; factories which had been producing luxuries were converted into munitions or supplies plants, where possible; and where this was not possible they were closed down and the laborers transferred for war service in essential industries. Germany thus early got right down to brass tacks. Indeed, in some instances Germany did not even

wait to discover whether the drive on Paris would be successful. Secretary Baker tells us that he knows of one case where within twenty-four hours after the outbreak of the war one-half of the laborers in a large nonessential industry were placed in the army and the remainder transferred to war industries. A selective draft for industry appears to have been a part of Germany's war preparedness.

Germany recognized, in other words, that for every soldier at the front there must be several (industrial) soldiers at the rear; and the principles of military organization were made to apply to every aspect of national life. A certain percentage of the national energy was put on the battle fronts; a certain percentage was devoted to the creation of submarines; a certain percentage to the manufacture of supplies and munitions; and a certain percentage to the production of foodstuffs. All useless effort, all waste motion, as far as possible, was thus eliminated—everything was arranged with an eye single to military victory.

THE EXPERIENCE OF FRANCE

It was quickly realized in France that "business as usual" would be nothing short of national suicide. Three-quarters of the male laboring population between the ages of eighteen and forty-five were called to arms literally overnight, with the result that French industry during those first awful weeks was largely paralyzed. France was relying upon her accumulated stores of supplies, plus importations from England and America. But after the pressure on the west was somewhat relieved and after it became clear that a long struggle was inevitable, France recalled from the trenches skilled laborers and mechanics who could henceforth serve the nation more efficiently in the industrial army. But when these men were withdrawn from the front it goes without saying that they were not delegated to produce luxuries and non-essentials; they were set to upbuilding war industries to the end that the armies might be certain of obtaining a steady replenishment of the indispensable weapons and materials of warfare. There cannot be the slightest doubt that France would have been crushed during those endless months of waiting for England to

get ready if she had not been making her national energy count effectively in the struggle in which she was engaged.

It is necessary to state, however, that France has not gone as far as Germany in the elimination of nonessentials. It appears that some luxuries have continued to be manufactured and sold in France, at least until very recently. Need we add that every ounce of national power thus misdirected is an ounce of power lost in the struggle against Germany?

THE LESSONS FROM ENGLAND

England, across the channel, and hence free from invasion, long deluded herself with the notion that she could have business as usual and at the same time cope successfully with an enemy that was wonderfully efficient in its organization for war. But England eventually awoke—in about two years—to the real requirements of the grim business of war. I quote from Hon. R. H. Brand, vice-chairman of the British War Mission to the United States: "We discovered to our surprise at the beginning of the war, that war apparently meant prosperity and not poverty. Wages advanced and millions found that they had more money than they had ever had before. The result was that consumption actually tended to go up among the poorer classes, and labor and materials vitally required for war purposes were *diverted* to meeting these new demands. But we found that 'business as usual' is impossible. The ravenous demands of a modern war compel every nation at war to choose between peace and war; if they have elected for war, they must order their economic lives accordingly; they must turn their industry from a peace to a war basis, and they must see that every war demand has a prior claim to every peace demand." Now England's industrial energy is mainly devoted to the production of war supplies. Whole industries have been closed down and the laborers engaged therein have been transferred to war occupations.¹

¹ Mr. Brand's address, from which the above was taken, was delivered September 26, 1917, before the American Bankers' Association. Unfortunately the address was not published in full in the official *Journal of the American Bankers' Association*. The important parts were, in fact, omitted. The writer has a transcript of the stenographic report of the full address.

It was argued by many in England, as it is being argued by some in the United States, that to readjust industry in such fashion would be to decrease wages and profits and thereby render more difficult the task of paying taxes and subscribing to government loans. The fallacy of this notion was revealed by experience, however, for when labor was shifted to war industries and factories were rehabilitated for the manufacture of war supplies, it was found that wages and profits were quite as large as before. And what is the vitally significant factor, it was found that these wages and profits were earned in producing *things that could be used in the waging of the war*. The war supplies obtained by this diversion of energy represented clear gain in fighting strength.¹

UNITED STATES WAR PRODUCTION INADEQUATE

While this country has been learning these lessons from the nations that have been through the fire we have also been acquiring some experience of our own. It was the general notion at the beginning of the war that if the government were able to secure the necessary funds from the sale of bonds and the raising of taxes, the purchase of the necessary materials and supplies would follow as a mere matter of routine. The utter fallacy of this idea is revealed in the figures made public by the war department on January 31, 1918. Exclusive of loans to our allies, the government planned to spend during the fiscal year ending June 30, 1918, \$12,316,000,000. In fact, the government has spent in the seven months from June 30, 1917, to January 31, 1918, only about \$3,150,000,000. That is, in seven-twelfths of the year the government has been able to spend only three-twelfths of what it planned to spend. With coffers filled to overflowing the government could not buy the supplies needed, for the simple reason that not sufficient energy had been devoted to the production of war supplies. Money alone was thus seen to be impotent; and this experience has focused attention on the real requirements for waging war, namely, materials and supplies.

¹ To guard against misunderstanding here it should be stated that some luxuries are still manufactured in England; for England's reorganization is not 100 per cent efficient. Moreover, it must be observed that the manufacture of certain luxuries to be shipped abroad in exchange for necessities may within limits be wise.

These figures show more clearly than mere words could possibly do that the United States has thus far not accomplished anything like what it confidently expected to accomplish. They prove that we are falling far short of rendering our maximum aid. Moreover, it is concrete evidence such as this which has forced our government to conclude that we must resort to the second of the two alternatives stated above; that is, secure a thoroughgoing readjustment of industry.

It is possible, of course, that we may continue with present methods and still blunder through to victory somehow. It may be that Germany is nearly done. But the evidence of the past year all points to an opposite conclusion. Not since the first year of the war has Germany gained such marked successes as during recent months. We may bolster up our courage by tales of "strategic retreats," of occasional recaptures of lost ground, and of the rumblings of internal discord in the Fatherland; but when are the allies to have something positive to offer in the way of gains of their own? We have been saying for over two years that Germany is "about through," and all the time the evidence shows that she is getting relatively stronger, at least so far as the European forces are concerned. Indeed, with the disintegration of Russia we are at the gravest period of the war since the Battle of the Marne. And really effective aid on our part cannot be given until the year 1919 at best.

But even granted that victory is ultimately assured for the allies, it must never be forgotten that every month of prolongation of the war means billions of additional cost and the sacrifice of the lives of thousands of our finest sons. All will agree that consciously to leave any stone unturned to render our maximum service and to bring the war to the earliest possible successful termination is nothing short of criminal. The supreme requirement of the hour would seem to be industrial mobilization that will go to the very foundations of our national organization.

WHAT OUR GOVERNMENT IS PLANNING

The government of the United States is, as already indicated, now fully aware of the necessity of such an industrial mobilization

as we have been discussing. It is important, therefore, that we all understand what developments are in store for us, to the end that we may co-operate in fullest measure with the government in its efforts.

First, the government is urging us to save as never before; and to save with a view to the elimination of nonessential industries. The Liberty Loan Committee states:

Luxuries and extravagance must go completely out of fashion—should, in fact, be considered little short of treachery. . . . There is not enough capital, labor, transportation, or raw material to go around, if those industries which are not essential to the conduct of war are continued at their normal productiveness. Every unessential industry which continues in operation must be considered as bidding against the nation for its life's blood. . . . Every unessential industry which burns coal deprives the essential industries by just so much of the supply available for their purposes. Every man who buys a new overcoat is bidding against Uncle Sam, who is buying overcoats for soldiers. And every dollar spent on a luxury is helping to support an unessential industry in the competitive consumption of essentials.¹

But the government is not to rely exclusively on voluntary saving as a means of bringing about industrial changes. It is also developing agencies of central control. In September a priority committee was established in Washington with power to decide what industries should be given prior claims in the matter of raw materials. This committee has drawn up a classification, as follows:

Class A comprises war work: that is to say, orders and work urgently necessary in carrying on the war, such as arms, ammunition, ships, etc., and the materials required in the manufacture of same.

Class B comprises orders and work which, while not primarily designed for the prosecution of the war, yet are of public interest and essential to the national welfare, or otherwise of exceptional importance.

Class C comprises all orders and work not embraced in Class A or Class B.

There are various subdivisions of these classes, indicated by a suffix number, thus: A₁, A₂, etc., B₁, B₂, etc.

All orders and work in Class A shall take precedence over those in Class B, and those in Class B shall take precedence over those in Class C.

¹ See *Economic World*, January 12, 1918, p. 54.

When rigidly applied to such fundamental materials as iron, it will be readily seen that this priority system reaches into nearly every branch of industry, and that people who wish iron and steel for ordinary industrial requirements will be forced to wait—and wait indefinitely, since the demands of the war industries are certain to be simply insatiable.

Very recent developments in connection with the problem of the nonessential industries may be indicated by quotations from a statement issued by the War Industries Board of the Council of National Defense late in February, 1918.¹

Shortages of many classes of raw materials and of labor in different lines are evident. Transportation, both water and rail, is obviously short and the need of industrial readjustment is apparent to make room for the war requirements of our government and our Allies. . . . In many cases, the facilities of less essential industries should be converted to essential production.

. . . . Our industrial equipment is limited. We do not have materials, machinery, transportation, labor, or capital sufficient for fighting the great war and for normal business at the same time. The war must be prosecuted to the utmost . . . and to that end business must, where necessary, be diverted from its established channels into new channels.

With reference to the coal situation, it is stated that—

The demands for 1918 to carry out the program for the production of necessities for the war, in addition to the normal business, would greatly exceed any possible production and distribution of fuel, so there is but one remedy, i.e., to limit the production of non-war industries sufficiently to provide for:

- a) War needs—direct and indirect.
- b) Necessities for the public welfare and domestic consumption.

In accomplishing the desired end, it should be our effort to divert the energies of non-war industries as far as possible to the production of the essentials for war, that each industrial center may use existing facilities, with its labor living at home, happy and contented.

In the readjustment process it is inevitable that the normal business of some industries must be interfered with in order that the production of war and public necessities be kept at the maximum. It may be that some plants because of lack of power, shortage of labor, raw materials, or transportation may have to suspend entirely. These sacrifices must be endured in the interest of our first object, which is to win the war. If we secure complete co-operation between Government and business, it is hoped that our industries may emerge

¹ This statement is issued by the Chamber of Commerce of the United States of America, as War Bulletin No. 34, entitled "Industry in War Times."

from the disturbed condition caused by the war, intact and strong for the economic problems which must face us.

It would seem to be the immediate duty of the War Industries Board—

1. To list, by classes or otherwise, and to define those industries whose operation as a war measure are of *exceptional importance*, classifying them as far as practicable in the order of their relative urgency, measured by the extent of their contribution, directly or indirectly, toward winning the war.
2. To consider carefully and, after due notice and hearings, to determine what are the less important industries, measured by the extent of their contribution, directly or indirectly, toward winning the war.
3. To promulgate such findings and to prepare, present, and, if practicable, enforce such definite and concrete plan or plans as will result in—
 - a) Stimulating the operation of industries of exceptional importance.
 - b) Curtailing the operation of the less important industries or, in the alternative, encouraging such industries so to change their operations as to produce war needs.
 - c) Conserving the supply of essential raw materials as reserves to be drawn to meet the war requirements.

The task of bringing about the necessary reorganization with the minimum of loss and suffering is so tremendous that the machinery for its accomplishment is as yet far from being perfected. While the details cannot be given in this paper, it is generally known that the government is now developing the machinery for transferring laborers with a minimum of loss or suffering to the jobs in war industries for which they are adapted. Plans are also being matured which will provide for adequate housing facilities in the vicinity of war industries. Various financial policies are also being worked out which will insure that investments shall be diverted from the nonessential industries, and that businesses which transfer to war work will be given adequate financial support and a guaranty of adequate profits.

It should be added here that the rapidity with which this readjusting may be accomplished largely depends upon the developments in shipping. The materials and supplies for war must pass through a narrow-necked bottle on the way to Europe, and the rate at which this neck expands will determine the rate at which we can effectively mobilize our resources for war purposes. Now, to increase our shipping capacity as rapidly as is required involves not only speeding up the work in existing yards, but also

enlarging our shipbuilding facilities by diverting labor and capital from less essential work. It means that parts of ships must be manufactured by industrial plants wherever readjustment for such work is practicable. It means, further, that imports and exports of nonessentials must be curtailed in many instances to the end that tonnage may be released for war business. And the restrictions of these imports and exports in turn necessitates readjustments in the domestic industries dependent upon such trade; the labor and capital employed in such industries must be diverted to the production of forms of war materials to which they may be adapted. In short, the problem before us is nothing less than the organizing of all the productive resources of the United States of America with a single end in view—that of building a bridge of ships across the Atlantic and sending across that bridge in minimum time a maximum of troops and supplies. The task we are undertaking is thus one gigantic business proposition, in comparison with which the largest individual business ever known is utterly insignificant. To carry such a stupendous task to successful completion will require not only the best organizing ability the nation possesses, but infinite patience and willing self-sacrifice on the part of those whose ordinary occupations are inevitably to be disarranged.

HOW BUSINESS CAN HELP

It goes without saying that American business men are anxious to assist in every possible way in effecting these industrial readjustments with a minimum of loss. Patriotic impulse alone will lead every American business man to do his part. He merely needs to be shown how he can help most efficiently. But quite apart from patriotism or the possibility of a curtailment of raw materials or transportation facilities there is another reason which should lead business men to make readjustments wherever possible just as quickly as they can. It is inevitable that the nonessential industries will shortly have greatly reduced sales; indeed, in many cases there is already a serious falling off in sales. The reasons why this is inevitable may be briefly indicated.

In the first place the perfect barrage fire of argument as to the necessity of saving that has been hurled at the American public in

recent months is bearing fruit. It is now regarded as unpatriotic not to save as never before in our history.

In the second place it is impossible for the rank and file of the American people to buy Liberty Bonds and spend as usual. If they buy bonds it must be at the sacrifice of accustomed luxuries. Moreover, we are now looking forward to the payment of taxes, and we are making our preparations for this by economizing in our normal purchases. It must be borne in mind in this connection, also, that at a time when the future is so uncertain a great many people are saying, "I had better save all I can now, because there is no telling whether it will be possible for me to save anything in the next few years."

Finally, it must be noted that the rapid rise of prices in nearly every line is *forcing* rigid economy among the masses. Statistics just published by the government show that retail prices of foodstuffs in the United States are now 57 per cent higher than they were in 1914, while general wholesale prices are 81 per cent higher. Students of the question are unanimous in the belief that prices will continue to rise here throughout the war, just as they have in the nations of Europe. It will therefore shortly be impossible for the masses of our people to devote much of their earnings to the purchase of nonessentials. They will count themselves fortunate if they are able to purchase enough of the necessities of life to sustain themselves in a state of normal efficiency. Already in many cases the pinch of war prices is beginning to mean real privation.

In the light of the situation which we have been discussing it is obviously imperative that business be readjusted to a war basis wherever practicable and as soon as possible. The great problem is, How? There are two attitudes which business men may assume. One is that of "watchful waiting"; the other that of active and constructive effort directed toward conversion of their plants to war manufacture. The former leads to bankruptcy and to neglected opportunity for service to the government; the latter is the avenue to participation in profits and to effective assistance to the nation in its hour of need. A large number of concerns have already been forehanded enough to divert a portion

of their plants to war work; and it is hoped that the facts about these may soon be made generally available. In the meanwhile it may prove suggestive to present here a very brief statement of some of the adjustments that have been made in England. Instead of gramophones, the gramophone company now makes fuses and delicate shell parts; instead of cloth for ordinary clothes, the woolen factory makes khaki; instead of motor cars, the motor-car maker makes shells; glaziers make cartridge clips; music-roll plants make gages; infant-food plants make plugs for shells; advertising agencies make shell adapters; watchmakers adjust fuses; baking-machinery plants make six-inch high-explosive shells; jewelry houses make periscopes; cream-separator factories make shell primers; and textile machinery firms make field kitchens.

The outstanding need of the time is for the managers and staffs of technical experts in non-war industries everywhere to be studying the problem with the greatest care in order to discover in what ways their plants may be adapted to war production. They should, moreover, actively co-operate with the agencies in Washington which, under the appointment or approval of the government, are wrestling with the problem of industrial readjustments. On the manufacturing side there is the Bureau of Manufacturing Resources of the Council of National Defense, which is giving its attention to the problem of plant conversion. On the commercial side there is the Commercial Economy Board of the Council of National Defense, which "has undertaken to co-operate with business men . . . in eliminating needless uses of men, materials, equipment, and capital in all lines of commercial business." Business men who desire to place themselves in line with this movement may very properly enter into correspondence with these agencies. Such correspondence may well have the double result of proving helpful both to the business interests and to the governmental committees themselves. There is opportunity here for some really constructive co-operation.

I think it is not putting it too strongly to say that the outcome of the greatest struggle in history for the rights of a common humanity very largely depends upon the rapidity and the effectiveness with which American business rises to the task before it.

THE UNIVERSITY OF CHICAGO WAR PAPERS

Issued under the auspices of the Publicity Committee of the University War Service

Published:

- No. 1 The Threat of German World-Politics.* By HARRY PRATT JUDSON, President of the University.
- No. 2 Americans and the World-Crisis.* By ALBION W. SMALL, Professor and Head of the Department of Sociology.
- No. 3 Democracy the Basis for World-Order.* By FREDERICK D. BRAMHALL, of the Department of Political Science.
- No. 4 Sixteen Causes of War.* By ANDREW C. McLAUGHLIN, Professor and Head of the Department of History.
- No. 5 The War and Industrial Readjustments.* By HAROLD GLENN MOULTON, Associate Professor of Political Economy.
-

The price of each pamphlet is five cents. Remittances should accompany orders. For single copies or small quantities, postage stamps will be accepted. Special rates will be made on lots upon application. Permission to republish will be freely given.

FOR FURTHER INFORMATION ADDRESS

THE UNIVERSITY OF CHICAGO PRESS
CHICAGO ILLINOIS